



Transition from TDM to All-IP Networks

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Executive Summary

- Bells state that in all-IP environment there is no need to regulate because:
 - (i) They no longer have dominance; and
 - (ii) regulation will dis-incentivize investment in next generation networks.
- AT&T asks the FCC to conduct TDM to IP trials. It believes trials will demonstrate regulation is unnecessary and affirmatively harmful to competition and consumers.
- Both AT&T and Verizon proffer Europe as an example of a region that lags in broadband deployment because of overregulation.

Contrary to Bells' claims:

- (i) No rampant infrastructure competition in the USA
 - For example, in enterprise market - competing, parallel cable and wireline infrastructures in the USA connecting enterprise or government sites are exception, not the rule. For most enterprise sites, there is only one monopoly provider – the regional Bell.
- (ii) Nor does competition at the applications layer eliminate bottlenecks at the infrastructure layer.
 - Why would existence of Vonage or Skype cause Bells' to lower monopoly pricing on Ethernet or TDM access services?
- (iii) Intramodal and intermodal competition stimulates investment while sensible regulation targeted at bottlenecks does nothing to dis-incentivize network investment. That is the lesson from Europe and the USA.

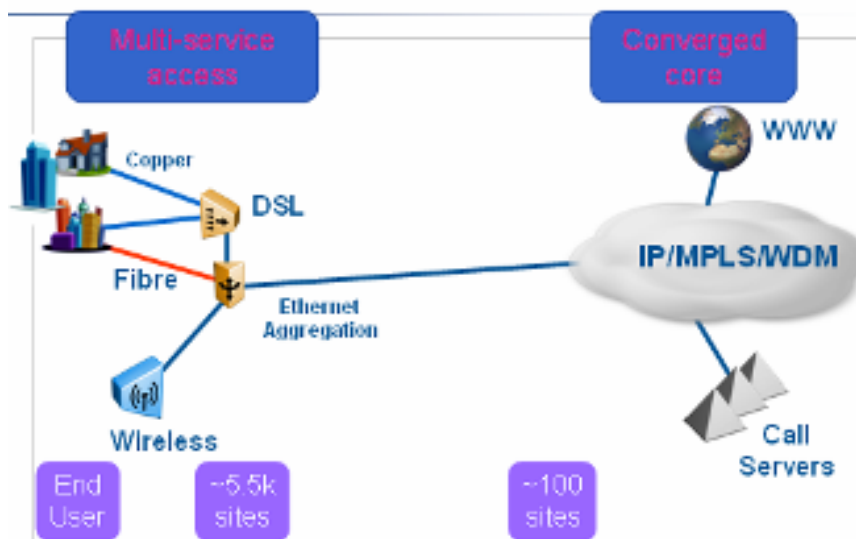
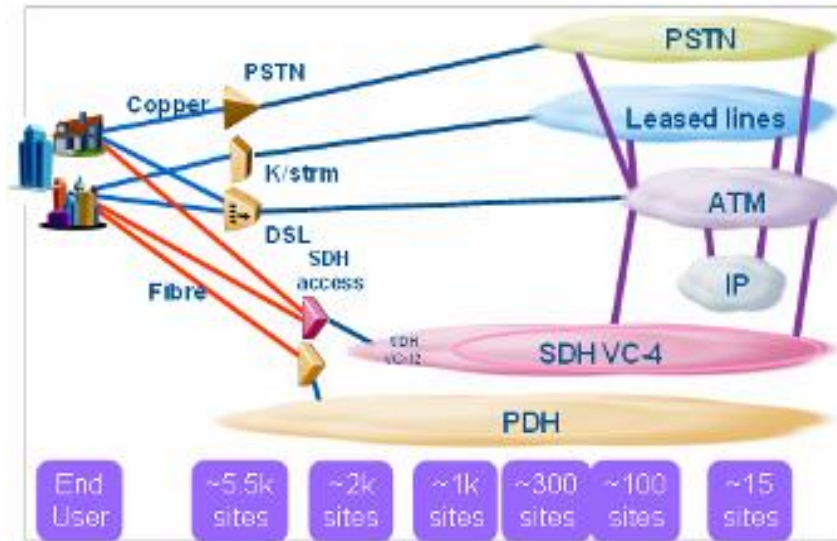
Dutch Example

- KPN announced transition to an all-IP network in 2005. Meant --
 - Closure of over 1300 of 1500 exchanges, reduction of interconnection points, migration of competitors' assets, possible extension of KPN monopoly power over last mile.
- OPTA, Dutch regulator, forced KPN to negotiate with competitors the terms of the closure of exchanges, migration of competitors' assets to new interconnection points.
- Despite relatively competitive communications market, OPTA still finds KPN dominant in provision of business access services.
- Netherlands – competition profile
 - Market reviews of consumer and enterprise communications services conducted regularly. Regulatory remedies in markets where the incumbent telco has significant market power.
 - Ubiquitous cable coverage.
 - Open access wholesale fiber available via Reggefiber.
 - Net neutrality regulation in place.
 - Dozens of over-the-top (OTT) and cloud providers.
 - Multiple national wireless providers (3 facilities-based/ at least 2 resellers)

Dutch Example

- Netherlands – competition profile (cont'd)
 - Consequence of intramodal and intermodal competition - fiber-to-the-home and VDSL service **covers 63-70% of households**.
 - Wireline broadband prices in the Netherlands range from USD PPP 0.65-8.89 per megabit per second whereas USA prices range from USD PPP 1.10-71.49 (see <http://www.oecd.org/sti/broadband/oecdbroadbandportal.htm>)
- Nevertheless OPTA finds infrastructure and wholesale service bottlenecks. KPN has significant market power (SMP) in markets below and applies remedies.
 - Wholesale leased line access (Ethernet and TDM)
 - Wholesale physical network infrastructure access comprising:
 - local loop unbundling (Main Distribution Frame and Sub-Distribution Frame access over copper and fiber), FTTH Optical Distribution Frame access, and Fiber-to-the-Office (FTTO) Optical Distribution Frame access
 - Wholesale high quality business broadband

UK Case - BT's Former all-IP NGN Plan (21CN)



- One universal multi-service network instead of parallel platforms (“Collapsing 27 to 1”).
- Shut down legacy by 2012.
- Generally significant reduction of the number of network elements in the center.
- Gap between local network elements (MSANs) and central network elements (Metro and core sites) generally widens.
- Competitors plan their investments based on incumbent’s NGN plans
- Ofcom consultations plus industry groups set up to understand and work through impacts. Ofcom involved in some of the industry groups.

UK Case

- BT has since pulled back on its 21CN plan though transition to NGN continues at slower pace. Shifted focus to investment on next generation access/FTTC and FTTP deployment instead.

UK - competition profile

- BT will cover two thirds of UK homes with fiber/superfast broadband by end of spring 2014.
- Majority of premises are connected via fibre to the cabinet, delivering speeds of up to 80Mbps. The rest are fibre to the premises, delivering speeds of up to 300Mbps.
- Wireline broadband prices in the UK range from USD PPP 0.61-4.20 per megabit per second whereas USA prices range from USD PPP 1.10-71.49 (see <http://www.oecd.org/sti/broadband/oecdbroadbandportal.htm>)

UK Case

UK - competition profile (cont'd)

- Rampant intramodal and intermodal competition enabled by functional separation of BT and regulation under the EC telecoms regime.
- Market reviews conducted at three year intervals to determine SMP. SMP assets are held either in BT openreach or BT Wholesale.
- BT openreach holds assets that are enduring bottlenecks.
- Equivalence of input (EOI) regulation applied to bottleneck services.
 - EOI means BT must offer competitors same products, T&Cs, prices, timescales, systems and processes, etc.

Lessons learned

- Infrastructure bottlenecks will continue to exist in NGN world regardless of OTT and cloud competition.
- Bottlenecks likely will not be at the same points in NGN as they were in the old network. Where they emerge will depend on incumbent's plan for transitioning to NGN.
- Incumbents' must provide detailed plans for NGN transition for candid, comprehensive discussion to take place and competitors to plan their networks.
- Regulation to mimic competition at infrastructure bottlenecks will continue to be necessary.
- Review of a market like the one on special access is a necessary action precedent which will inform the debate about where bottlenecks exist today and how to address the transition to NGN.
- Possible to have sensible regulation that encourages wholesale intramodal and intermodal competition, stimulates broadband deployment and NGN/NGA investment, reduces prices and stimulates innovation.

Thank you

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